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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,596	09/09/2003	Fernando Gonzalez	MI22-2393	5277
21567	7590	08/09/2005		EXAMINER
				LE, THAO P
			ART UNIT	PAPER NUMBER
			2818	

DATE MAILED: 08/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/659,596	GONZALEZ, FERNANDO 
	Examiner	Art Unit
	Thao P. Le	2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 06 April 2005.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-3 and 11-20 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-3 and 11-20 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 9/9/03 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>04/06/05</u> | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 04/06/05 was filed after the mailing date of the application. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claims 1-3, 11-20 are pending in this application.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 11-17 are rejected under 35 USC 102 (b) as being anticipated by Ohshima et al., U.S. Patent No. 6,251,754.

Regarding claims 1, 11, Ohshima et al discloses a method of forming a semiconductor comprising (See Figs. 2A-2F, 4A-5E, and Cols. 1-21):

Forming a first substrate 13 (Fig. 2C) comprising semiconductor material-containing structures separated from one another by an insulative material (Cols. 1-2; lines 50-51, Col. 10), the semiconductor material-containing structures defining an upper surface;

Forming a second semiconductor substrate (Fig. 2A) comprising a second monocrystalline material 14/15 having a damage region 18 thereon;

Bonding the second semiconductor substrate to the semiconductor-material-containing structures at the upper surface above the first monocrystalline base (Fig. 2D); and

Cleaving the monocrystalline material along the damage region (Fig. 2E).

Still regarding claim 11, Ohshima et al discloses the first substrate contains monocrystalline base.

Regarding claim 2, Ohshima et al discloses wherein the cleaving leaves a rough upper surface and after cleaving, smoothing the surface (Fig. 2F).

Regarding claim 12, Ohshima et al discloses the monocrystalline layers comprise monocrystalline silicon (Cols. 2-6).

Regarding claim 13, Ohshima et al discloses wherein some of the semiconductor-material-containing structures have no function except bonding and wherein others have additional functions (Cols. 1-21).

Regarding claims 14-15, Ohshima et al discloses wherein the second monocrystalline is bonded to semiconductor-material-containing structures and the

second monocrystalline base to the insulative material at the planarized upper surface above the first monocrystalline base (Figs. 2A-2E).

Regarding claims 16-17, Ohshima et al discloses wherein the damage region is formed by implanting hydrogen ions into the second monocrystalline base (Fig. 2A) and the cleaving comprises thermally treating the second monocrystalline base.

Henley et al., U.S. Patent No. 6,245,161, Henley et al., U.S. Patent No. 6,083,324, and Yonehara, U.S. Patent No. 6,150,031 also disclose the limitations of claims 1 and 11.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 18-20 rejected under 35 U.S.C. 103(a) as being unpatentable over Ohshima et al., U.S. Patent No. 6,251,754.

Regarding claim 18, Ohshima et al discloses the temperature for bonding is low but fails to disclose the temperature for bonding and after bonding is less than or equal to about 700 oC. However, it would have been obvious to one having ordinary skill in the art that the selection of these parameters such as **energy, concentration, temperature, time, molar fraction, depth, thickness, etc.**, would have been obvious and involve routine optimization which has been held to be within the level of ordinary skill in the art. "Normally, it is to be expected that a change in **energy, concentration, temperature, time, molar fraction, depth, thickness, etc., or in combination of the parameters** would be an unpatentable modification. Under some circumstances, however, changes such as these may impart patentability to a process if the particular ranges claimed produce a new and unexpected result which is different in kind and not merely degree from the results of the prior art ... such ranges are termed "critical ranges and the applicant has the burden of proving such criticality.... More particularly, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller* 105 USPQ233, 255 (CCPA 1955). See also *In re Waite* 77 USPQ 586 (CCPA 1948); *In re Scherl* 70 USPQ 204 (CCPA 1946); *In re Irmscher* 66 USPQ 314 (CCPA 1945); *In re Norman* 66 USPQ 308 (CCPA 1945); *In re Swenson* 56 USPQ 372 (CCPA 1942); *In re Sola* 25 USPQ 433 (CCPA 1935); *In re Dreyfus* 24 USPQ 52 (CCPA 1934).

Regarding claims 3, 19-20, it would have been obvious to one having ordinary skill in the art that the semiconductor-material-containing structures are conductively-doped or contain doped semiconductor region. It would have been obvious to one having ordinary skill in the art who familiar with the references disclose, would have found it obvious to make a structure having conductively-doped or doped semiconductor region in the process of making semiconductor device such as MEMS.

When responding to the office action, Applicants' are advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao P. Le whose telephone number is 571-272-1785. The examiner can normally be reached on M-T (7-6).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 571-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Thao P. Le

Art Unit 2818